

BACKGROUND

We previously demonstrated the benefit of direct, daily collaboration between Infectious Disease (ID) and Critical Care (CC) practitioners on guideline adherence and antibiotic use in the medical intensive care unit (MICU). We conducted this study in a 24-bed medical intensive care unit (MICU) at an 861-bed tertiary-care and teaching hospital to examine three and six-month post-intervention antibiotic use and guideline adherence to assess whether the previous effect was sustainable.

METHODS

Retrospective chart analysis of 45 patients at 3-month (3-PI) and 42 patients at 6-month (6-PI) post-intervention were reviewed in comparison with intervention phase that occurred between July 2012 through September 2012 for:

1. Demographics: Age, gender, race
2. Admitting diagnosis
3. Severity Indicator: APACHE II Score
4. MICU infection
 - Community-acquired pneumonia
 - Health-care associated pneumonia
 - Intra-abdominal infections
 - Urinary tract infections
5. Clinical Outcomes
 - Mechanical ventilation days
 - MICU length of stay
 - Antibiotic days of therapy
6. Appropriateness of therapy

Statistical analysis:-

“p” value: < 0.05 -> Significant

Software: Prism® (Version 5.04, Graphpad, INC.)

Mann-Whitney test: Continuous variables

Fischer’s exact test: Categorical variables

RESULTS

Comparison of Data Collected During the Intervention & Post-intervention Phases

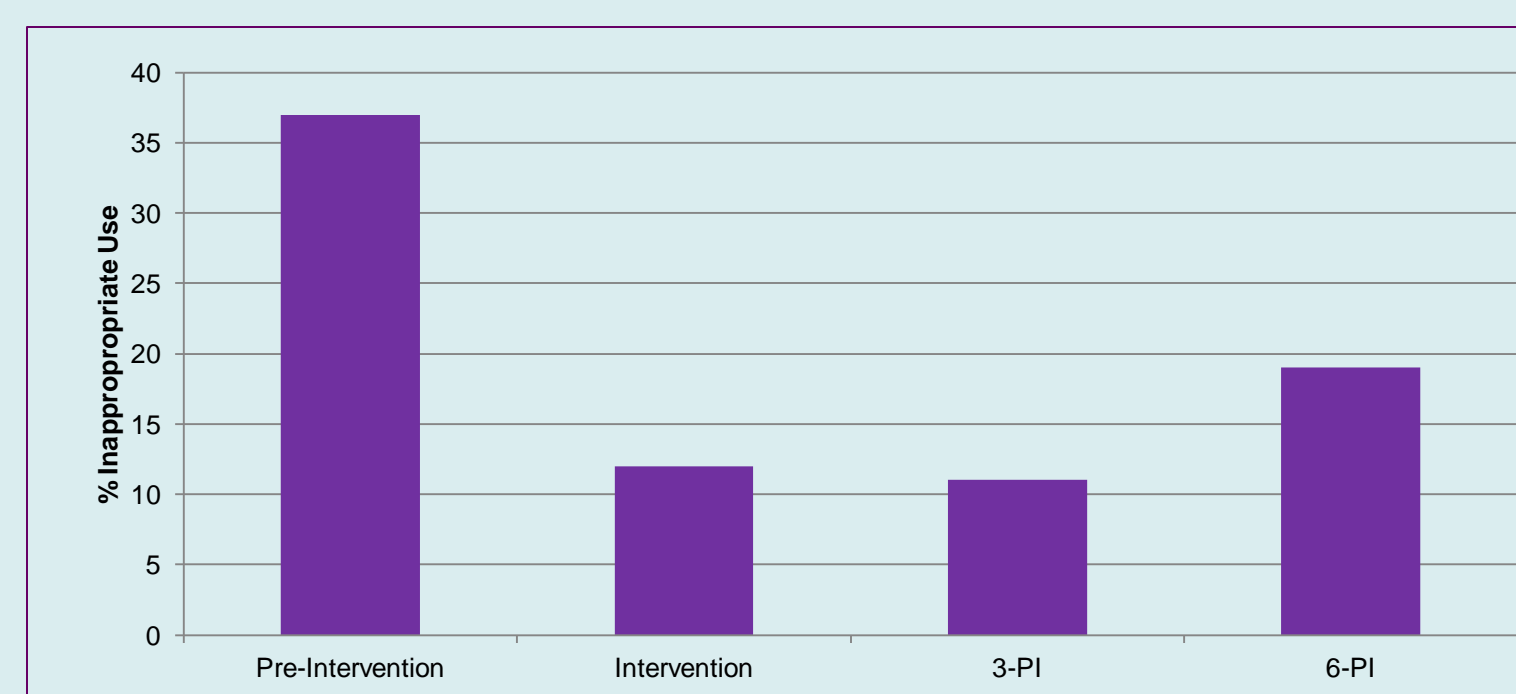
	Intervention n = 123	3-month PI n = 45	p- value
Age (years)	59	61	0.43
APACHE II Score	18	19	0.55
Mechanical ventilation days	6.1	5.1	0.30
Length of stay	7.8	7.3	0.64
Average of antibiotic therapy	6.3	6.7	0.59

	Intervention n = 123	6-month PI n = 42	p- value
Age (years)	59	65	0.05
APACHE II Score	18	20	0.15
Mechanical ventilation days	6.1	5.6	0.62
Length of stay	7.8	7.3	0.61
Average of antibiotic therapy	6.3	6.3	0.87

Antibiotics (Days)	Intervention n = 123	3-month PI n = 45	p- value
Total antibiotics	6.7	6.3	0.59
Extended-spectrum Penicillins	3	3.6	0.21
Cephalosporins	1.6	1.6	0.30
Carbapenem	0.9	1.1	0.32
Vancomycin	3.1	4.3	0.007

Antibiotics (Days)	Intervention n = 123	6-month PI n = 42	p- value
Total antibiotics	6.7	6.3	0.87
Extended-spectrum Penicillins	3	2.8	0.77
Cephalosporins	1.6	1.5	0.35
Carbapenem	0.9	2.2	0.19
Vancomycin	3.1	3.3	0.08

Inappropriate Antibiotic Use



Inappropriate Antibiotics	Percentage	Total Number	p- value
Intervention n = 123	12%	15	NA
3-month PI n = 45	11%	5	1.00
6-month PI n = 42	19%	8	0.30

DISCUSSION

• In an era of increasing multi-drug resistant pathogens, healthcare providers should be more attentive to the unnecessary usage of antibiotics

• Our previous study determined the significant decrease in usage of inappropriate antibiotics in MICU by direct, daily collaboration

• Overall usage of major classes of antibiotics including extended-spectrum penicillin, cephalosporin, vancomycin and carbapenem did not consistently vary in post-intervention phase.

• Overall inappropriate usage also did not significantly change at 6 months post-intervention

• Unique Study: one of the first studies to illustrate the long term effects of a positive combined intervention between IDS and MICU physician in order to better comply with antimicrobial guidelines

• Few things that possibly can bring about similar long term effects:

- Consistent alliance between IDS and MICU providers;
- Providing the MICU team with the cards for the antimicrobial guidelines;
- Increasing the frequency of the lectures of guidelines by IDS in MICU

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